

**In re the Application of ALAN JAMES COULSON**  
**Application No. 10/561,702**  
**Docket No. 0074-535083**

**REMARKS**

**Objections to the Claims**

The Examiner objected to Claims 1-5, 7, 9, 10, 12, 13, and 15 because the Examiner concluded that those claims contain certain informalities. The Examiner identified alleged informalities in Claims 1-5, 7, 9, 10, 12, 13, and 15. Claims 1-5, 7, 9, 10, 12, 13, and 15 have been amended in accordance with most of the Examiner's suggestions. Following is a detailed description of the amendments made and those being questioned by the Applicant.

**Claims 1, 6, and 10**

The Examiner objected to the word "including" in Claims 1, 6 and 10 and suggested changing this to "comprising". Claims 1, 6 and 10 have been amended to change the word "including" to "comprising". A corresponding change has also been made to Claims 3 and 4.

**Claims 1, 3 and 4**

The Examiner objected to the construction "steps of;" in Claims 1, 3 and 4. The Applicant has amended Claims 1, 3 and 4 to replace "steps of;" with "steps of:". A corresponding change has been made to Claim 10.

**Claim 1**

The Examiner objected that the words "a sample" on line 3 should be "samples". This change has been made. The Examiner also suggested that the phrase "sample of data" on line 5 of Claim 1 should be "samples of received data". This change has been made to Claim 1.

**Claims 1, 3, 4 and 10**

The Examiner suggested that various commas in these claims should be replaced with semicolons. Claims 1, 3, 4 and 10 have been amended to make the Examiner's suggested changes.

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**Claims 2, 4, 8, 11-14, and 16-20**

The Examiner suggested that “wherein” should be “, wherein” in Claims 2, 4, 8, 11-14, and 16-20. This change has been made. Claims 3 and 15 have been similarly amended.

**Claim 2**

The Examiner suggested that the word “magnitude” in Claim 2 should be “amplitude”. The Applicant disagrees with this suggestion. Although often used interchangeably, magnitude and amplitude have distinct meanings. Amplitude is a linear measure of a quantity such as voltage that has real domain. Magnitude is specifically the size component of the linear polar coordinate and is restricted to the positive real domain. So, while the amplitude of a real sine wave will vary from, for example, -2 volts to 2 volts, the magnitude of the complex sine wave will be a constant, for example 2 volts. The Applicant submits that the word “magnitude” in Claim 2 is accurate and should remain. The Applicant further submits that this interpretation is supported by the specification and requests that the Examiner reconsider and withdraw this objection.

**Claim 3**

The Examiner objected to the word “estimating” on line 2 of Claim 3. In response to the Examiner’s objection, the Applicant has amended the word “estimating” to “estimating parameters of each of”.

The Examiner objected to the phrase “on the output” in line 5 of Claim 3. The Applicant submits that this phrase is proper in Claim 3 and should not be removed. The DFT is an operator and receives the signals as an input and produces an output. The phrase “performing a periodogram search on the output of the DFT” clarifies that the DFT must be performed first and that the periodogram search is performed on the output produced by the DFT. Should the words “on the output” be removed from this claim, the claim would then claim performing a

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periodogram search on a DFT. That is not possible. The Applicant requests that the Examiner reconsider and withdraw this objection.

**Claim 4**

The Examiner suggested that the phrase “of the” on line 3 of Claim 4 should be changed to “of each of the number of”. The Application has made that amendment to Claim 4. The Examiner also suggested that the phrases “an interferer” and “the interferer” in Claim 4 should be changed to “a narrowband interferer” and “the narrowband interferer”. Those changes have also been made.

**Claim 5, 7 and 9**

The Examiner objected to the word “including” in Claims 5, 7, and 9. The word “including” has been amended to “further comprising”.

**Claim 7**

The Examiner objected to the phrase “each incoming” in Claim 7. Claim 7 has been amended to change the phrase to “of each incoming” to provide clarity.

**Claims 7, 9, and 19**

The Examiner suggested that the word “packet” be replaced by “data packet” in Claims 7, 9, and 19. The Applicant notes that the phrase “OFDM packet” in Claims 7, 9 and 19 is described in the specification at page 15, lines 15-17. Therefore, the Applicant believes that the term “OFDM packet” is sufficiently clear when interpreted in view of the written description. The Applicant requests reconsideration and withdrawal of this objection.

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**Claim 9**

The Examiner suggests that the phrase “the current” should be amended to “current”. The Applicant has amended Claim 9 to replace “the current” in line 3 with “a current”. The Applicant believes that the amended phrase provides greater clarity.

**Claims 9 and 19**

The Examiner objected to the phrase “achieved “lock”” in Claims 9 and 19. The Applicant has amended this phrase in Claims 9 and 19 to “achieved lock”.

**Claim 10**

The Examiner suggested that the phrase “received data” in Claim 10 should be “the received data”. The Examiner also suggested that the phrase “sample of received data” should be “samples of the received data”. Claim 10 has been amended to incorporate both suggestions.

**Claim 12**

The Examiner suggested that the phrase “the output” in Claim 12 should be “an output”. The Applicant notes that a Fourier transform operator has only one output and if the claim is amended as suggested by the Examiner, the claim would imply that there could be many outputs from the Fourier transform on the samples. Therefore, the Applicant requests that the Examiner reconsider this objection.

The Examiner objected to the term “arranged” in line 5 of Claim 12 and suggested that the term be amended to “is arranged”. The Applicant disagrees with this suggestion. However, Claim 12 has been amended to clarify that the narrowband interference detector further comprises at least one phase lock loop arranged to lock on a peak identified by the periodogram search. It is believed that the proposed amendment overcomes the problem implied by the Examiner’s objection.

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**Claim 13**

The Examiner objected there is no space between the words “claim” and “12”. Claim 13 has been amended to provide a space between the words “claim” and “12”. The Examiner requested that the word “further” be removed from line 2 of Claim 13. This amendment has been made.

**Claim 15**

The Examiner objected to the phrase “wherein the OFDM receiver is further arranged”. Claim 15 has been amended to recite “wherein the OFDM receiver further comprises a pilot symbol detector” to address the Examiner’s objection.

**Claim 16**

The Examiner suggested that the word “loop(s)” should be replaced by the word “loop”. The phrase “phase lock loop(s)” in Claim 16 has been amended to “at least one phase lock loop” to overcome’s the Examiner’s objection. A similar amendment has been made to Claim 17.

The Examiner suggested that the phrase “an OFDM packet” should be replaced by “the OFDM data packet”. The Applicant submits that such an amendment is not necessary because the term “an OFDM packet” is clearly described in the specification at page 17, lines 10-11, for example. Therefore, the meaning of “OFDM packet” is clear when read in the light of the written description. The Examiner is requested to reconsider and withdraw this objection.

**35 USC 112, Second Paragraph: Claims 3, 4, 5, 8, 12, 13, and 16-20**

The Examiner rejected Claims 3-5, 8, 12, 13, and 16-20 as being too indefinite to meet the requirements of 35 USC 112, second paragraph. The Examiner pointed out several instances in the rejected claims which provide indefiniteness to the claimed subject matter. Each of those instances is discussed more specifically as follows.

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**Claim 3**

The Examiner indicated that in Claim 3 there is no antecedent basis for the terms: “the periodogram” and “the number of interferers.” The Applicant has amended Claim 3 to change the phrase “the periodogram” to “a periodogram”. This first instance now provides antecedent for the word “the periodogram” later in line 6. Claim 3 has also been amended to change the term “the number of interferers” to “the number of narrowband interferers”. Antecedent basis for that term is found in Claim 1 from which Claim 3 depends.

**Claim 4**

The Examiner indicated that there is no antecedent basis in Claim 4 for the following terms: “the corresponding periodogram”; “the amplitude of the corresponding periodogram peak”; and “the phase of the corresponding periodogram peak.” Claim 4 has now been amended to provide antecedent basis for those phrases within the claim and also to depend on Claim 3 which provides antecedent basis for “the periodogram”.

**Claim 12**

The Examiner indicated that in Claim 12, lines 4 and 5, there is no antecedent basis for “the periodogram”. Claim 12 has been amended to change “the periodogram” to “a periodogram.”

**Claim 13**

The Examiner indicated that there is a lack of antecedent basis in Claim 13 for the phrase “the amplitude of the corresponding periodogram peak.” Claim 13 has been amended to provide antecedent basis for that term.

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**Claim 16**

The Examiner indicated that in Claim 16 there is no antecedent basis for the phrase “lock loops”. Claim 16 has been amended to recite “at least one phase lock loop”. Claim 16 depends on Claim 15 which now depends on Claim 12. Claim 12 claims “at least one phase lock loop” and therefore provides antecedent basis for the “at least one phase lock loop” as now recited in Claim 16. Similarly, the phrase “phase lock loop” has been amended in Claim 17 to “at least one phase lock loop”. Claim 17 also is indirectly dependent on Claim 12 which provides antecedent for the phrase “phase lock loop”.

**Claim 19**

The Examiner indicated that in Claim 19 there is no antecedent basis for the terms “the phase lock loops” and “the filter estimator”. Claim 19 has been amended to depend on Claim 17 so as to provide antecedent basis for the phrase “phase lock loop”. The phrase “the filter estimator” has been amended to “a filter estimator”.

**Claim 20**

The Examiner indicated that in Claim 20 there is a lack of antecedent basis for the phrase “the OFDM guard interval”. This phrase has been amended to “an OFDM guard interval”.

**Claim 8**

The Examiner pointed out that Claim 8 appears to recite a feature that is already claimed in Claim 5. This ground of rejection is moot in view of the cancellation of Claim 8.

**Claims 10 and 12**

The Examiner requested clarification of the term “Fourier transform” as used in Claims 10 and 12. Claim 10 has been amended to recite “a Fourier transform operator” in place of

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“Fourier transform” and it should now be clear that this is the same operator as recited in Claim 12 which recites “wherein the Fourier transform operator”.

In view of the amendments to Claims 3-5, 8, 12, 13, and 16-20, it is believed that the rejection of those claims under 35 USC 112, second paragraph, is overcome. Accordingly, the rejection should be withdrawn.

**CONCLUSION**

In the Official Action, the Examiner indicated that all of the claims contain allowable subject relative to the art of record and that the claims could be placed in condition for allowance if rewritten to remove the informalities identified by the Examiner and to overcome the rejection based on Section 112, second paragraph. In view of the foregoing amendments and remarks, it is believed that all of the pending claims are in condition for allowance. The Applicant respectfully requests that the Examiner reconsider the objections noted in the foregoing remarks.

Respectfully submitted,

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